



Advanced Research Projects Agency • ENERGY

## GENI PROJECT

# AUTOGRID SYSTEMS

## INTEGRATION OF RENEWABLES VIA DEMAND MANAGEMENT

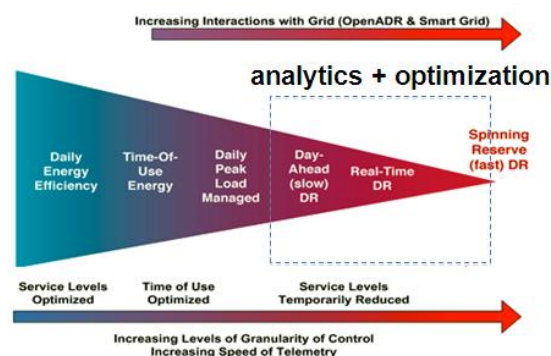
PROJECT TITLE:	Highly Dispatchable and Distributed Demand Response for the Integration of Distributed Generation		
ORGANIZATION:	AutoGrid Systems, Inc.	LOCATION:	Cupertino, CA
PROGRAM:	GENI	ARPA-E AWARD:	\$2,865,461
TECH TOPIC:	Electricity Transmission & Distribution	PROJECT TERM:	1/11/12 – 1/10/14
WEBSITE:	<a href="http://www.auto-grid.com/">http://www.auto-grid.com/</a>		

### CRITICAL NEED

The U.S. electric grid is outdated and inefficient. There is a critical need to modernize the way electricity is delivered from suppliers to consumers. Modernizing the grid's software could help reduce peak power demand, increase the use of renewable energy, save consumers money on their power bills, and make the grid more resilient — among many other notable benefits.

### PROJECT INNOVATION + ADVANTAGES

AutoGrid, in conjunction with Lawrence Berkeley National Laboratory and Columbia University, will design and demonstrate automated control software that helps manage real-time demand for energy across the electric grid. Known as the Demand Response Optimization and Management System - Real-Time (DROMS-RT), the software will enable personalized price signals to be sent to millions of customers in extremely short timeframes—incentivizing them to alter their electricity use in response to grid conditions. This will help grid operators better manage unpredictable demand and supply fluctuations in short time-scales—making the power generation process more efficient and cost effective for both suppliers and consumers. DROMS-RT is expected to provide a 90% reduction in the cost of operating demand response and dynamic pricing programs in the U.S.



### IMPACT

If successful, AutoGrid's demand response optimization system could allow homeowners and businesses to exert more control over their energy usage and utility bills by providing them with up-to-date information on prices and real-time, grid-wide energy demand and supply conditions.

- **SECURITY:** A more efficient, reliable grid would be more resilient to potential disruptions from failure, natural disasters, or attack.
- **ENVIRONMENT:** Enabling increased use of wind and solar power would result in a substantial decrease in carbon dioxide (CO<sub>2</sub>) emissions in the U.S.—40% of which are produced by electricity generation.
- **ECONOMY:** A more efficient and reliable grid would help protect U.S. businesses from costly power outages and brownouts that stop automated equipment, bring down factories, and crash computers.
- **JOBS:** Advances in grid software could result in new high-paying jobs in supporting sectors such as engineering and information technology.

### CONTACTS

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Columbia University